

# APPLIED RESEARCH AND METHODS

*Applied Research and Method's (ARM) primary mission is to provide technical and specialist expertise that supports and extends the work of other GAO teams, and thus contributes to the overall quality of the information that GAO provides to support congressional and federal agency decision making. ARM's members function as consultants to other GAO teams, provide technical analyses where required, perform specialized reviews, and prepare guidance on methodological issues. ARM staff also conduct studies on questions of interest to Congress that require specialized analysis.*

## Our Work

ARM is organized into five centers that provide assistance to GAO's mission teams. It also houses five subject-matter "Chiefs" (Accountant, Actuary, Economist, Statistician, and Technologist) who provide expert advice to all of GAO in their areas of specialty.

*Center for Economics:* This center, which includes economists with training and experience in various economic specialties, provides economic analysis for GAO's work. Its members play a variety of roles on different projects, develop and adapt economic models to evaluate the effectiveness and efficiency of government programs, and examine the impact of proposed policy and program changes.

*Center for Design, Methods, and Analysis:* This center provides assistance on job design and technical methods and analysis. The staff includes social science analysts, survey specialists, statisticians, and computer specialists. They help in conceptualizing researchable questions, selecting appropriate research methodologies, designing and implementing data collection strategies, and gathering and analyzing complex data sets.

*Center for Evaluation Methods and Issues:* This center produces reports and conducts networking aimed at strengthening the evaluation methods "toolbox," incorporating program evaluation information into policy-making and program management, and promoting knowledge of evaluation within GAO and governmentwide. Its methodologies include performance measurement, social science research, and future-oriented analyses such as "grounded foresight."

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*Center for Technology and Engineering and the e-Security Laboratory:* This center's objectives are to improve information technology and software engineering modernization efforts and to assess the computer security of the federal government. In addition, the center reviews GAO products with technical content for accuracy. The staff includes engineers and scientists with expertise in systems engineering, cost estimation, software engineering, real-time systems, computer security, and biological technologies.

*Center for Communications and Visual Analysis:* Experts from this center work with teams throughout GAO to design visuals that enhance communication of key messages in GAO publications.

### *Accomplishments and Key Projects*

Recent ARM studies have contributed to three major areas. In addressing threats to security, ARM has

- evaluated technologies to detect and kill anthrax and decontaminate the mail and the environment;
- assessed the application of biometric techniques in authenticating individuals entering the United States;
- reviewed studies of the economic impact of the terrorist attack on the World Trade Center; and
- evaluated agencies' software engineering capability, performed computer security vulnerability assessments and enterprise architecture studies, and assessed the impact of computer virus attacks on the federal government.

Other studies examined technical practices in federal programs or emerging issues or methods. ARM studies

- reviewed the economic model that the Department of Agriculture uses to analyze the cattle and beef industry;
- examined methods used in substituting new for older goods in computing the Consumer Price Index;
- reviewed the Census's implementation of the American Community Survey;
- analyzed the privacy and confidentiality issues that arise when programs link computerized data from different sources that contain personal information;
- developed a survey technique that can support estimates of sensitive variables without directly asking respondents sensitive questions; and
- examined how program evaluating, audit, and investigation techniques can be combined to provide policy information.

A third group of studies examined issues in federal program evaluation, including

- approaches to evaluating federal information dissemination programs;
- variation in the division of federal and state responsibility in regulatory programs and implications for accountability and performance information; and
- the potential of ethnographic methods in studying the implementation of a performance-oriented culture in an agency.